'BOND-BRIDGE-LINK-INFLUENCE' RELATIONSHIPS BY FARMER

GROUPS TRIGGER 'AMPLIFY-MULTIPLY' EFFECTS

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ABSTRACT

Group approach has been pursued as one of the means of developmental interventions in various agricultural projects, to usher in enterprise innovations and, changes in productivity and profitability mostly among small and marginal farmers. Its relevance in context of state like Odisha is more appropriate, as majority of the farming community (>80%) comes under small and marginal categories. Primarily, they operate below threshold level of operation that decides the minimum scale of production to garner an effective bargain in the value chain. The farmer groups (FGs) with higher 'economies of scale' and 'economies of scope' would be able to improve market access, thereby improve income. Under different projects, the FGs had been promulgated to take up 'Market-Led Initiatives' (MLIs) that help to build relationships within group members, between groups, with market players and other developmental actors. The study on 'Market-Led Initiatives' (MLIs) by the farmer groups in Odisha was carried out covering 5 developmental projects (ATMA, SGSY, OTLEP, Farmers' Club and WORLP), 9 districts and 88 farmer groups to find out the relationships of farmer groups at different level viz. within group, between groups, with market players and other developmental actors building intra-group, inter-group, extra-group and supra-group relationships respectively. The group's response was captured on a scale totaling 100 score with equal distribution of score across 4 different relationships. Thus, the maximum potential score for each type of relationship was 25. The responses so obtained were added to arrive at the 'relationship score' for that group. Further, the study also assessed the effect of 'relationships-built' by the groups, resulting in 'amplification and multiplication' effect. It was hypothesized that building relationship by the FGs helped in amplifying and multiplying the resultant outputs; which was obtained by the group responses, out of potential score of 50 for amplifying and multiplying effects each. Thus, the 'amplify-multiply' score was obtained for each group. The correlation between 'relationship score' and 'amplify-multiply' effect was calculated.

The four types of relationships by any FG in pursuance of MLIs viz. intra-group, inter-group, extra-group and supra-group led to bonding, bridging, linking and influencing relationships respectively. It was observed that the 'relationship score' of FGs under ATMA, SGSY, OTLEP, Farmers' Club and WORLP were 61.90, 57.00, 55.63, 55.30 and 77.89 respectively. Analyzing the project wise scores, it was found that intra-group score were highest in ATMA, SGSY, OTLEP and WORLP; where as in 'Farmers' Club', the extra-group score was the highest. The supra-group score was lowest component across all the projects. A strong positive correlation coefficient of 0.976 was obtained between 'relationship score' and 'amplify-multiply' effect for all the 88 groups put together. Thus, it may be construed that 'bond-bridge-link-influence' relationships by the FGs would trigger 'amplify-multiply' effect of MLIs positively. Accordingly, the group facilitators and project functionaries may pay due attention in building all types of relationships

viz. intra-group, inter-group, extra-group and supra-group, so as to 'amplify-multiply' effect of MLIs.

KEYWORDS: Bond, Bridge, Link, Influence, Relationship Score Amplify-Multiply Effect

INTRODUCTION

Markets have the potential to reduce poverty, create self-reliance and drive pro-poor growth, all too often markets seems to be part of the problem rather than a potential solution. Markets are often not competitive and frequently dominated by a few powerful players (Pinrose-Buckley 2007). In order to mitigate the situation, under various agricultural development projects, farmer groups (FG) have been evolved mostly among small and marginal farmers to usher in social reengineering coupled with economic rejuvenation. The opportunity for smallholders to raise their incomes from agricultural production, natural resource management, and related rural enterprises increasingly depends on their ability to successfully participate in the marketplace exchanges (Meinzen-Dick R. *et al* 2009). Hence, shifting the focus from production led programmes to more market led interventions (MLIs) through renewed attention on institutions of collective action, such as farmer groups, would act as an efficient mechanism for enhancing marketing performance (Barham and Chitemi 2009). The World Bank (2012) indeed emphasized the role of collective action, a form of social capital, to support, sustain and develop the agricultural innovation system (AIS), as most innovations occur not through the isolation of actors but through their interactions.

The agricultural development projects / programs in the state of Odisha have attempted to organize the farmers into groups, build their capacities, identify and evaluate market opportunities, develop profitable agro-enterprise, and intensify production, while sustaining the resources upon which livelihoods depend. Moreover, broad array of services would be required to develop a dense network of relationships among small producers, between small-producer organizations, with markets actors and policy-makers. Thus, the relationships could be categories into intra-group, inter-group and extra-group (Herbel et al 2012), based on the level at which it was established.

This research work has been undertaken to study the performance of farmer groups promoted by five developmental projects / programs to find out the 'relationship' that was built to foster market-led initiatives (MLIs). Furthermore, it was hypothesized that farmer groups with higher 'economies of scale' and 'economies of scope' would be able to amplify and multiply the effects accrued by MLIs. The close correlation between 'relationship' and its 'effects' would justify the purpose of building 'relationships' and accordingly, the farmer groups and their facilitators would pay adequate attention in fostering the relationship across all levels, to conduct the MLIs more effectively and efficiently. The study was carried out with twin objectives; primarily, to find out the 'relationship score' and the resultant 'amplify-multiply' effects of farmer groups in five different developmental projects in Odisha and secondly, to ascertain the correlation between the 'relationship score' and 'amplify- multiply' effects of the farmer groups.

METHODOLOGIES

The study was undertaken as a part of doctoral research by the first author during 2012-13, wherein 88 farmer groups were studied supported by 5 different projects / programs viz. Agriculture Technology Management Agency (ATMA), Self Help Groups (SHGs) under Swarnajayanti Gram Sworojagar Yojana (SGSY), Orissa Tribal Livelihood Empowerment Project (OTLEP), Farmer's Clubs of National Bank for Agricultural and Rural Development (NABARD) and Western Orissa Rural Livelihood Project(WORLP), in 9 districts of Odisha state. Each group leader (President / Secretary / Treasurer) along with a team of 3-4 group members were jointly interviewed, their responses on 4

types of relationships viz. within group members, between groups, with market chain actors and with other developmental actors (research / extension agencies, credit institutions, panchayati raj institutions etc.), building intra-group, inter-group, extra-group and supra-group relationships respectively, were obtained. Under each relationship, 5 questions were asked with *Likert*-type 'weighting score' ranging from maximum 5 to minimum 1. Altogether 20 questions were put forth before each group members to assess the 'relationship score' for that group with 'potential relationship score' of 100, summed-up across 4 different components viz. intra-group, inter-group, extra-group and supra-group relationships, each with 'maximum relationship score' of 25. The 'relationship score' was calculated for 5 developmental projects (ATMA/SGSY/OTLEP/Farmer's Club/WORLP) and compared both project wise and component wise to conduct situational assessment and derive lessons for improvement. The following formulae were used for calculating project wise and component wise relationship score.

$$Rp = Ri + Rj + Rk + Rl$$

$$Ri = Ri_1 + Ri_2 + Ri_3 + Ri_4 + Ri_5 \quad Rj = Rj_1 + Rj_2 + Rj_3 + Rj_4 + Rj_5$$

$$Rk = Rk_1 + Rk_2 + Rk_3 + Rk_4 + Rk_5 \quad Rl = Rl_1 + Rl_2 + Rl_3 + Rl_4 + Rl_5$$

Where,

Rp = Relationship score of one particular project,

$Ri/ Rj/Rk/Rl$ = Intra-group/ Inter-group/ Extra-group/ Supra-group relationship scores of that farmer groups of same project.

Ri_1 to Ri_5/ Rj_1 to Rj_5/Rk_1 to Rk_5 /Rl_1 to Rl_5 = Responses of farmer groups of the same project.

The study also took cognizance of the effect of building 4 types of relationships by each group, in terms of improving 'economies of scale' and 'economies of scope' elucidated as 'amplification effect' and 'multiplication effect' respectively. The assessment of these two effects (amplification and multiplication) was done by obtaining group wise response for 10 questions under each type of effect on a 5 point *Likert*-type scale with score ranging from maximum 5 to minimum 1. Thus, the total potential score on 'amplify-multiply' effect for each group was 100 (amplification score 50 + multiplication score 50). The 'amplify-multiply' effects for 88 farmer groups were obtained and compared both project wise and component wise.

$$AMp = Ap + Mp$$

$$Ap = \Sigma \ Ap_1 \text{ to } Ap_{10} \text{ and } Mp = \Sigma \ Mp_1 \text{ to } Mp_{10}$$

Where,

AMp = Amplify-Multiply effect score of a particular project

Ap = Amplification effect score

Mp = Multiplication effect score

The project wise mean values of 'relationship scores' and 'amplify-multiply' effect scores were compared using one-way Analysis of Variance (ANOVA), at 1% significance level.

Thereafter, the correlation between the two features of MLIs i.e. 'relationship score' and 'amplify-multiply' effect

score for 88 farmer groups put together, was obtained by using the following formula.

$$r = \sum \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma y)^2]}}$$

Where,

r = Correlation coefficient

x = relationship score of a particular farmer group

y = amplify-multiply effect score of the same farmer group

RESULTS AND DISCUSSIONS

- **Relationship Score**

Based on the responses of 88 farmer groups, the 'relationship score' for each group was calculated by summing up the component wise responses viz. intra-group, inter-group, extra-group and supra-group and computed project wise. The project wise and component wise 'relationship score' is given in Table 1.

Table 1: Project-Wise and Component-Wise Relationship Score

Projects	No. of Groups	Relationship Score				
		Intra-Group	Inter-Group	Extra-Group	Supra-Group	Total
ATMA	20	21.40	15.15	15.95	9.40	61.90
SGSY	20	19.55	17.00	12.65	7.80	57.00
OTLEP	19	18.16	15.42	13.37	8.68	55.63
Farmer Club	20	14.60	11.65	20.70	8.35	55.30
WORLP	9	20.89	21.00	20.22	15.78	77.89

As depicted above, highest 'relationship score' was obtained for farmer groups under WORLP project in comparison with other projects indicating strongest relationship by the farmer groups, putting all four components together. This was an indication of the fact that WORLP had invested project resources and time in building farmer groups' relationships i.e. within, amongst and beyond, very effectively in comparison to other projects. Further, it would generate curiosity in analyzing the supra-group component data; wherein the supra-group score of the WORLP groups was found to be more than double that of SGSY score. When probed further, it was learnt that SHGs under SGSY though supported with capacity building of members 'within' and 'amongst groups' but the 'relationships' with other developmental institutions was not noticeable. Interestingly, highest relationship score for a single component was recorded for Intra-Group relationship in ATMA project. This may be attributed to the fact that districts selected under ATMA were those districts wherein considerable efforts had been rendered for capacity building of farmer groups under World Bank assisted Innovations in Technology Dissemination (ITD) component of National Agriculture Technology Project (NATP) (Mishra & Swanson 2009). In the Inter-Group relationship components, highest score was obtained under the WOLRP indicating relatively stronger relationship 'between' farmer groups in comparison with that of other projects. Within Extra-Group components of relationship, highest score was recorded under Farmer Club, referring to better relationship of farmer groups with market players in comparison with all other projects.

- **Amplify-Multiply Effect**

The effects of relationships established within group, between groups, with market players and with other developmental actors were captured on a two dimensional matrix, i.e. improvement on 'economies of scale' and 'economies of scope'; which were described as 'amplify effect' and 'multiply effect' respectively. Based on the responses received on these two effects, the project wise 'Amplify-Multiply' effect data are presented in Table 2.

Table 2: Project Wise Amplify-Multiply Effect

Institution	No. of Groups	Amplify-Multiply Effect		
		Amplify	Multiply	Total
ATMA	20	37.15	29.60	66.75
SGSY	20	35.10	24.90	60.00
OTLEP	19	33.47	25.16	58.63
Farmer Club	20	27.20	30.85	58.05
WORLP	9	40.78	38.33	79.11

The above table revealed that farmer groups promoted under WORLP had shown highest 'Amplify-Multiply' effect amongst 5 categories of projects. In all the projects, the farmer groups depicted higher amplification effect than multiplication effect, except 'Farmer Club', wherein multiplication effect was higher than the other effect. This was in consonance with the higher amount of extra-group score obtained by the 'Farmer Club' as depicted in Table 1. This may be attributed to the fact that stronger relationship of the 'Farmer Club' with market chain actors contributed towards higher multiplication effect.

- **ANOVA of Relationship Score and Amplify-Multiply Effect**

The means of "relationship score" and "amplify-multiply" effect obtained project-wise were compared by one-way ANOVA for test of significance at 1% level of significance. The result of which is presented in Table 3.

Table 3: ANOVA of Relationship Score and Amplify-Multiply Effect

Sl. No.	Particulars	Mean Values Project Wise					
		ATMA	SGSY	OTLEP	Farmer Club	WORLP	F Value
1	Relationship Score	61.90[a]	57.00[ab]	55.63[b]	55.30[b]	77.89[c]	31.56*
2	Amplify-Multiply Effect	66.75[a]	60.00[b]	58.63[b]	58.05[b]	79.11[c]	24.52*

Significant (P≤0.01) and Means with different superscripts vary significantly along the row.

It was observed that mean values of "relationship score" of farmer groups of ATMA project vary significantly with that of farmer groups belonging to OTLEP, Farmer Club and WORLP; whereas there was no significant difference observed between the mean values of "relationship score" obtained for SGSY, OTLEP and Farmer Club. However, the mean value of "relationship score" for WORLP differed significantly with that of all four projects. In case of "Amplify-Multiply" effect the mean value of ATMA and WORLP differed significantly with that of other four projects and the mean values of SGSY, OTLEP and Farmer Club did not differ significantly.

- **Correlation**

A strong positive correlation of 0.976 was obtained between 'relationship score' and 'Amplify-Multiply' effect with 'coefficient of determination' of 95%. This is an indication of the fact that higher relationship score would result in higher 'Amplify-Multiply' effect. Conversely, in order to realize better amplification and multiplication effect by the

farmer groups, stronger intra-group, inter-group, extra-group and supra-group relationships would be required.

- **Bond-Bridge-Link-Influence**

According to Herbel *et al* 2012, farmer groups need to foster three types of relationships viz. intra-group or bonding, inter-group or bridging and, extra-group or linking; in order to strengthen the social capital and harvest collective actions. Adapting the above three relationships, this paper builds further on the extra-group or linking relationship that elucidated relationships with market players and all other actors put together. Whereas authors of this paper categorized the relationships of farmer groups with market actors in value chain as 'extra-group' or 'linking' relationship and the relationship built/ strengthened with developmental actors, policy makers including panchayati raj institutions as 'supra-group' or 'influencing' relationship. It is opined that the highest-order of collective action by farmer groups would include relationships with policy makers that allows the farmer groups to participate in decision making and trigger favourable policy formulation. This is in consonance with the suggestions made by Chamala 1990 that….. "Empowerment leads to commitment and action'.

Thus, this paper studied all four types of relationships viz. within group / intra-group relationship that strengthened the 'bond', between groups/ inter-group relationship that built the 'bridge', with market players/ extra-group relationship that established the 'link' and with decision makers/ supra-group relationship that elicited the 'influence'. 'Bond' formation described the relationship among members of same group, 'Bridge' formation symbolized the relationship between one particular group with other groups, 'Link' formation depicted the relationship of one particular group with market chain actors and 'Influence' action by the farmer group could be achieved through establishing relationship with other developmental actors. The key indicators of Bond-Bridge-Link-Influence relationships as enumerated by the farmer groups are given in Table 4.

Table 4: Key Indicators of Bond-Bridge-Link-Influence Relationships

Sl. No.	Types of Relationships	Key Indicators
1	Bond: Intra-Group Relationship	- Regular group meeting - Successful thrifting and crediting operations within group - Commonality of interest in pursuance of an agro-enterprise. - Sharing of knowledge, skill, labour and information within group members. - Equitable distributions of group benefits
2	Bridge: Inter-Group Relationship	- Periodical meeting of group leaders at least once in every month. - Common agreement to assist other groups mostly for backward-forward linkage. - Sharing of information mostly on market chain. - Help to build defunct and new groups - Sort out the differences if any in group meetings
3	Link: Extra-Group Relationship	- Contact information of the market-chain actors available with group leaders. - Periodical interaction with chain actors and more frequently during cropping/ enterprise season. - Sharing of information on market chain especially time, form, utility and placement. - Collectivization of input procurement and purchase the inputs at a lesser cost than done individually. - Marketing of products by collectivizing the outputs.
4.	Influence:	Group leaders periodically interact with elected members

	Supra-Group Relationship	including Panchayati Raj Institution.
		• Able to participate in the Program/ Policy level meetings at district and state level.
		• Able to place the demands collectively.
		• Able to allocate the public resources based on group priorities.
		• Holds social authority and act as a 'pressure group' to reprimand defaulters including market-chain actors.

CONCLUSIONS

- Under a particular project (especially Farmer Club), such pattern of relatively higher observations in certain components along with lower observations in other components indicated that building of relationships followed a complex pattern, not a unidirectional and a sequential pattern of building one relationship after another. Thus, the four components of 'relationship score' though intrinsically linked but did not follow a sequential development. With project mandates, priorities and approaches differing that led to different consequential effects, as depicted by varied component-wise relationship score. It reaffirms that the interplay of institutions and individuals is more complex than is often recognized; yet the potential for temporary interventions and changes in institutions to alter long-standing patterns is greater than has been recognized (World Bank, 2015).

- Herbel et al. (2012) suggested that successful institutional innovations should cover three types of actions based on the farmers' social capital: strengthening collective action among farmers at the grassroots level (intra-group relations), bridging between small-holder farmers and the upper organization (inter-group relations), linking between small-holder farmer, upper institutions and organizations, public and private enterprises, as well as policy-makers (extra-group relations). Reaffirming the above three relationships, this paper however underscored the importance of delineating the extra-group relations into two distinct categories wherein relationships with market chain actors were considered under 'extra-group relationship' called linking category and the relationships with policy and decision makers were put under 'supra-group relationship' called influence relationship.

- On generalization, it may be described that higher 'economies of scale' as indicated by intensification of existing farming system, higher quantity/ quality of produces, better bargaining capacity, better access to knowledge, skill and information had triggered 'amplify effect'. On the other hand, higher 'economies of scope' as depicted by diversification of farming system, introduction of new enterprises, better input-output linkages, replication of success 'from one to many' resulted in 'multiply effect'. Therefore, the project functionaries would pay adequate attention for building relationships on a sustainable manner.

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